



# World Kitchen

## Designed for Success

### RESULTS

- Flawless install of a production management system to replace obsolete custom-built process
- A proof of concept prior to implementation and close collaboration throughout the project between World Kitchen and GE
- Reduced downtime, reduced loss, and improved throughput and processes due to better access to production data
- Improved decision making with real-time visual factory displays
- Minimal rework during implementation phase and no loss of warranty
- Less waste and improved operating and environmental performance
- Saved time and costs with minimized operator re-training

The consumer products division of Corning, Inc. was sold and re-established as World Kitchen, LLC, a housewares company that manufactures and markets world-renowned bakeware, dinnerware, kitchen and household tool brands such as Corelle®, CorningWare®, Pyrex®, Revere®, EKCO®, Baker's Secret®, Chicago Cutlery® and OLFA®.

However, support for the custom-written FORTRAN-based production management system that the company had running on a legacy system in its Corning, New York plant wasn't part of the deal. The system provided plant floor information, including product counting and quality control. It was time for something new.

### About World Kitchen

World Kitchen currently employs approximately 3,000 people and has major manufacturing and distribution operations in the United States, Canada, and Asia-Pacific regions. Products are sold through multiple channels, including mass merchants, department stores, specialty retailers, retail food stores, and catalog showrooms. An additional channel is the company's CorningWare/Corelle/Revere Factory Stores located in outlet centers across North America and internationally.

The Corning plant has about 350 people working to manufacture the company's Corelle dinnerware, the original "break and chip resistant" glass dinnerware. Corelle is recognized worldwide for its strength and durability and has been manufactured at the Corning plant since 1970. The underlying "break and chip resistant" technology was developed by Corning Glass Works.

According to World Kitchen, Corelle is made through a hub lamination process that thermally bonds three layers of glass: core glass in the middle, with top and bottom layers of very clear skin or glaze glass. The process creates a lightweight, durable, multi-layered product (Vitrelle™ glass) that can be used to heat and reheat food even in conventional ovens. In addition, the unique enamels used



during the decorating process actually become part of the glass, so the patterns last as long as the dinnerware.

At the plant in Corning, plates and bowls are manufactured from molten glass in just under 15 minutes and placed in a packing case. The plant produces up to 100 million pieces of Corelle Vitrelle™ glass dinnerware each year.

### Keeping Pace With Production

The Corning plant is divided into two distinct areas: a “hot” end to turn sand into plates on seven production lines and a “cold” end where the dinnerware is decorated on eight production lines. The number of lines in use at any one time is dependent on product demand.

With a plant this busy, information and data retrieval is critical to keeping up with business. But World Kitchen found itself without support for its custom-written FORTRAN legacy system (the product couldn't be updated because people who could program in FORTRAN were few and far between), and the original solution provider wasn't around to support the hardware anymore. Hence, it began to investigate a replacement system.

Brian Hoyler, World Kitchen Manufacturing Information Systems Engineer, who spearheaded the new system development, said, “We investigated many of the products available on the market. GE Intelligent Platforms' Proficy® Plant Applications was the best fit for our needs because it handles both process and discrete [decorating] production. We are a mixed model. Most production management products were written for one model or the other.” In addition, Hoyler reports that Proficy was competitive on a cost basis.

After a major SAP implementation was completed, the company decided that one of the key requirements of a new system would be that it had to be an “out-of-the-box” solution. “There were only two of us available to do the install,” said Hoyler. “We needed a solution that was well supported and one that didn't require a lot of custom programming – both short-term and long-term.”

### A high-performance solution that enables connectivity

The company's new production management system is made up of Proficy Plant Applications, Proficy HMI/SCADA – iFIX®, Proficy Historian and Proficy Real-Time Information Portal. The integrated solution provides connectivity between the machines, data, insights, and people at World Kitchen—enabling the best decisions for high performance across the plant.

“We are collecting more information than ever,” said Hoyler. “We collect quantitative values and qualitative attributes through the [Plant Applications] Quality module and scheduling and downtime information through the [Plant Applications] Efficiency module. Also, we know the functionality is there to do more as the need arises.”

The company is using Proficy software to manage its waste as well. Proficy is a proof point of GE's ecomagination™ strategy by

delivering a customer solution that simultaneously improves a customer's operating and environmental performance.

### Flawless Implementation

Originally, World Kitchen was looking to replace the functionality of the legacy system, Hoyler said, because, “New MES systems are still a little difficult to justify as cost reduction projects by themselves.”

GE Professional Services implemented the entire solution in six months. By contrast, the original legacy system was written over a period of three years. During the sales cycle, GE and partner Automatech framed a working proof of concept as the basis for initial design discussions with World Kitchen.

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**“From day one, the GE team involved us in the design process. We benefited from classroom training and ongoing one-on-one instruction to get up to speed with the capabilities of GE's Proficy\* Plant Applications software. This knowledge transfer was a key factor in the smooth transition from the homegrown legacy system we were using to the Plant Applications platform.”**

**“Overall, it was a very good experience for me. The classroom training was directly applicable to our installation, and the GE team patiently provided on-the-job training and involved me in the details of the configuration process. We had a flawless install, implementing the entire solution in only six months.”**

**Brian Hoyler, Manufacturing Information Systems Engineer,**  
World Kitchen, LLC

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At the outset of the project, the World Kitchen management team and production stakeholders worked closely with the GE team to fully define deliverables and set expectations. The project management methodology was described and implemented to measure team performance and control project execution. The proof of concept platform served as an invaluable tool to demonstrate Proficy functionality in the context of the World Kitchen process and project deliverables.

The GE Professional Services team performed a detailed analysis of customer requirements by closely studying the existing Quality and Production Management processes. In an effort to minimize operator re-training and ensure a smooth transition, the team made it their goal to maintain the existing structure and workflow offered by the company's legacy system and where possible, provide a one-to-one mapping to corresponding Proficy Plant Applications functions.

Since the legacy migration required a significant leap from older '80s technology to a modern data model and user environment, it

was an excellent candidate for an iterative development process as opposed to the traditional waterfall project methodology. Therefore, the GE team employed elements of the common Software Development methodology, known as the Unified Process, to quickly generate the Plant Applications use case model and functional design documentation.

This entailed building screen mockups and some working functionality in Plant Applications to replace the legacy screens associated with a particular function. These were then reviewed with the World Kitchen team to agree to the final form before committing to the design specification and moving onto the next function.

### Communication Is Key

“From day one in any project, we encourage active customer participation in the development process,” says Tom Gardiner, GE Professional Services Technical Lead. “Significant customer contribution is key to the success of the agile Unified Process methodology, so it was important to get Brian up to speed and knowledgeable in the capabilities of Proficy Plant Applications.”

Through classroom training and ongoing one-on-one instruction, Hoyler and his team were able to provide informed input to the development process. This on-the-job training and knowledge transfer were also key factors in the smooth transition from the legacy system to the Plant Applications platform.

“There was practically no rework during the implementation phase and little or no warranty loss,” continued Gardiner. “This approach was successful because we were very fortunate to have a customer willing to ‘dive in and roll up their sleeves’ and participate in the design process.”

Implementation services were key for Hoyler. “It was wonderful for us. They trained us while the solution was going in, and we had a flawless install.”

“We implemented the cold end on July 15 and the hot end on August 1,” Hoyler said. “It was a non-event at the plant. We used all out-of-the-box screens. The people adjusted to the Excel®-like data entry screens very fast. The training went very well with almost no griping about the change.”



### Easy Data Manipulation

The Proficy architecture is such that Proficy Historian collects photo eye counts and other raw process data in very granular detail, from the hot end production line. Proficy Plant Applications detects and interprets events and summarizes the key data from Historian into business contexts.

Quality Control inspectors later input their inspection test data directly into Plant Applications in the same contexts that the software already created in real time. Proficy Real-Time Information Portal displays a blend of both Historian detailed data and Plant Applications event summary information in real time in animated process graphic formats, trends, grids, etc.

This connectivity between World Kitchen's data and its people enables insights to maximize efficiency and fast responsiveness throughout the process.

"We are going to put photo eyes on the cold end as well, so we will have real-time production management reporting there also," Hoyler added.

Proficy HMI/SCADA – iFIX systems are also collecting data from the floor that is subsequently stored in Proficy Historian. As part of the installation, World Kitchen had some reports written in Microsoft® Excel for the Proficy Real-Time Information Portal so that its data is visible in Excel. Reports are run at scheduled intervals using stored procedures in the company's database.

"Management likes the fact that we can manipulate the data easily and we like the look and feel of Excel add-ins," said Hoyler. "We can

do queries directly out of Excel. The Proficy Portal real-time displays actually save money by allowing us to make decisions and take action while the ware is still on the belt."

The company reports that the improved ability to analyze production data has made it possible to develop programs for downtime reduction, loss reduction, throughput improvement and process improvement. These programs are showing results.

### The End of The Line

The bottom line for World Kitchen: The plant is running better.

"I haven't written anything from scratch yet. We closed the project and all I've done is minor tweaking, no major changes."

World Kitchen leverages GE Intelligent Platforms' GlobalCare® Support. GlobalCare offers tailored support services, tools and resources, and cost-effective maintenance so customers can optimize their GE software investments. GlobalCare provides a consistent worldwide backbone of professionals, offering 24x7 emergency support, software version upgrades and advanced support tools to maximize customers' operational availability and productivity.

"Help is fantastic," Hoyler said. "I get right to the Proficy help folks when I call and they are very knowledgeable and helpful. They stay right with me. Support has been a big plus."

Access to GE's Services organization and GlobalCare has saved World Kitchen in support costs. "My partner quit right at the beginning of the project and it still implemented in six months."

### GE Intelligent Platforms Contact Information

Americas: **1 800 433 2682** or **1 434 978 5100**

Global regional phone numbers are listed by location on our web site at [www.ge-ip.com/contact](http://www.ge-ip.com/contact)

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